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# Food Aid: Motivation and Allocation Criteria

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**Food Aid: Motivation and Allocation Criteria.** By Shahla Shapouri and Margaret Missiaen, Agriculture and Trade Analysis Division, Economic Research Service, U.S. Department of Agriculture. Foreign Agricultural Economic Report No. 240.

### **Abstract**

Governments have given a variety of explanations for granting foreign aid to developing countries. This report evaluates the motives that affect food aid policies and distribution. The analyses include a review of food aid from the United States, the European Community, and Canada and a series of econometric approaches that help determine what factors motivate donors' food aid allocation decisions.

**Keywords:** Food aid, grain trade, grain stocks, policies, United States, European Community, Canada

### **Note**

For purposes of this analysis, food aid comprises wheat and wheat products, rice, and corn.

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## Introduction

What Motivates Countries To Provide Food Aid? . . . . .	4
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## World Food Aid Trends

World Food Contributions Declined Relative to Commercial Trade . . . . .	6
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## U.S. Food Aid Trends

U.S. Grain Assistance Is a Relatively Small Portion of U.S. Grain Exports . . . . .	8
Recipients of U.S. Food Aid Change Over Time . . . . .	10

## Trends in Food Aid From Other Major Donors

The EC's Share of Grain Aid by Major Donors More Than Doubled Between 1975 and 1985 . . . . .	12
Food Aid's Share of Canadian Grain Exports Remained Fairly Constant Over Time . . . . .	14

## Background of U.S. Food Aid

The Focus of U.S. Food Aid Policy Has Shifted Over Time. . . . .	16
Levels of U.S. Food Aid Reflect Changes in Domestic Policy Priorities . . . . .	18

## History of EC and Canadian Food Aid

Domestic and International Factors Result in Changes in EC and Canadian Food Aid Directions . . . . .	20
--	----

## Modeling the Motivation Factors and Allocation

### Criteria of Food Aid

A Model Estimates How Donor Policies and Recipient Needs Affect Food Aid Transfers. . . . .	23
--	----

## Commodity Allocation Component

Commodity Allocation Component Estimates the Response to Domestic Factors . . . . .	24
The Type and the Level of Commodities Allocated Vary Along With Conditions in the Donor's Domestic Environment. . . . .	26

## Country Allocation Component

Country Allocation Component Estimates the Factors Underlying the Distribution of Food Aid Among Recipients . . . . .	28
Donors' Foreign Interests Determine Allocations Among Developing Countries, but to Differing Degrees . . . . .	30

## Recipients' Needs Component

The Relationship Between Donors' Allocations of Food Aid and Recipients' Needs Is Examined. . . . .	33
Humanitarian Concerns Significantly Affect Bilateral and Multilateral Allocations From All Donors . . . . .	34

## Conclusions

Donors' Domestic Considerations Remain Strong in Allocation Decisions. . . . .	36
---	----

References. . . . .	38
---------------------	----

Appendix . . . . .	40
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## What Motivates Countries To Provide Food Aid?

**This study examines three major donors' food aid and uses a series of econometric approaches to help determine what motives affect food aid policies and distribution.**

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The success of the Marshall Plan in promoting economic recovery in Europe after World War II has shown that economic aid is an important means of promoting development. Food aid, as an important component of economic aid, has become a vital form of external assistance for many low-income countries since the late 1960's.

However, the role and the effect of food aid are controversial. One subject of debate is the donors' motivation in providing food aid. While food aid fulfills a humanitarian and development mission, food aid also provides a means for the donor to dispose of surplus commodities and to develop commercial markets.

There is considerable literature on the mission and the effect of food aid in the overall development process. However, the analyses are not uniform, depend on the area of the study or the time under consideration, and contain varying conclusions.

This report identifies the major factors affecting food aid. We use a series of econometric approaches to evaluate and quantify the factors in policies regarding transfers of food aid (in wheat and wheat products, rice, and corn) to developing countries by the three largest food aid donors: the United States, the European Community (EC), and Canada.

The study of food aid policy provides useful insights into how donor countries respond to the two traditional and often conflicting food aid policy relationships: food shortages and food surpluses. When donor surpluses and recipient shortages coincide, for example, food aid objectives are shared by both. But objectives may conflict if donor food shortages or recipient surpluses occur. Donor food aid policy also reflects the interaction between domestic agricultural interests and foreign policy interests. Domestic agricultural policies often restrict production to support prices while foreign policy concerns favor larger supplies at lower prices for food assistance.

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### Food Aid Is Used for Several Purposes

- Humanitarian relief
  - Economic development
  - Surplus commodity disposal
  - New market development
  - Foreign policy objectives
-



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## **Goals and Approach in Examining the Motivation and Allocation Criteria of Food Aid**

### **Goals:**

- Identify major factors affecting food aid
- Quantify elements in three donors' policies regarding food allocations to developing countries
- Examine how world food distributions respond to food shortages and surpluses

### **Approach:**

- Review evolution of U.S., EC, and Canadian food aid policies
  - Develop models to measure effects of domestic factors in allocating the volume of food aid over time
  - Evaluate factors affecting donor allocations among recipient countries
  - Evaluate donors' collective response to recipient's needs
-

## World Food Contributions Declined Relative to Commercial Trade

Total grain trade has increased dramatically over the last two decades, while the food aid share has declined from nearly 40 percent to less than 10 percent for the major donors.

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Total grain (wheat, rice, and coarse grains) food aid averaged about 12 million tons in 1970-72 and 1984-86. However, food donations during the intervening years were much lower, ranging from 6 to 10 million tons. The worldwide shortage of grain during the mid-1970's reduced food aid shipments. Large grain stocks in most donor countries enabled them to respond to the African food crisis in the mid-1980's with increased food assistance. While the United States was by far the largest donor in the early 1970's, the U.S. share declined by the mid-1980's while the EC share increased. The Canadian share has increased from the low level of the mid-1970's.

U.S. food aid shipments have declined both in total volume and as a share of total U.S. grain exports since the 1960's. By contrast, EC and Canadian exports and food aid increased from 1970 to 1986. The increase in both Canadian aid and total grain exports was less than the increase in EC shipments. During this period, the EC changed from a net grain importer to a net exporter. EC exports (to countries outside the EC) grew by more than 12 percent a year, while food aid shipments expanded by 8 percent a year.

During 1970-86, the share of world grain food aid shifted among the top donors (fig. 1). Although the United States is still the largest contributor, its donations declined from 74 percent in 1970 to 62 percent in 1985. The EC share more than doubled to 14 percent, while the Canadian share increased slightly to 11 percent.

There has been a moderate shift toward multilateral food aid; that is, aid transferred from donors through an intermediate organization to several recipients. Multilateral arrangements increased from only 16 percent of total food aid during 1970-72 to an average of 27 percent in 1984-86 (table 1).

The United States and Canada are the largest suppliers of assistance through multilateral agencies, as measured by contributions to the World Food Program.

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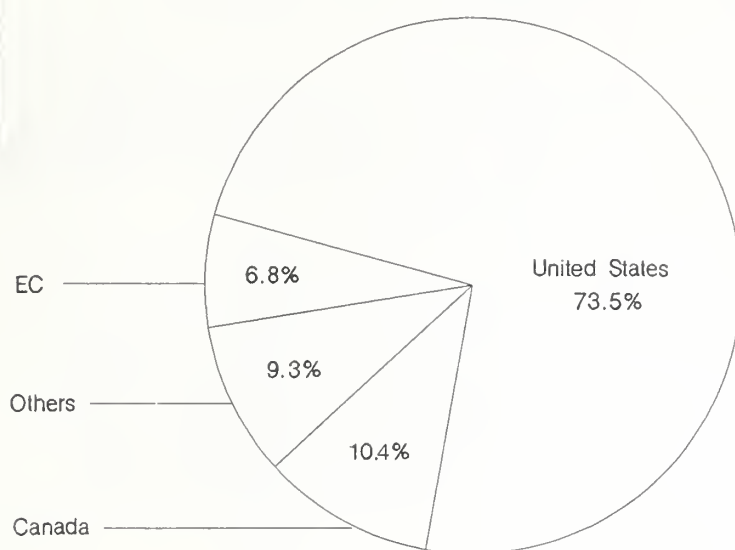
## Food Aid Trends

- Total tonnage of grain food aid declined in the mid-1970's and early 1980's but returned to higher levels in the mid-1980's
  - U.S. donations of food aid as a share of total U.S. grain exports have declined
  - The U.S. share of world grain food aid has declined, as the EC's and Canada's shares have grown
  - Multilateral food aid as a share of total food aid has increased
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Figure 1

## Major donors' share of world grain aid

1970



1985

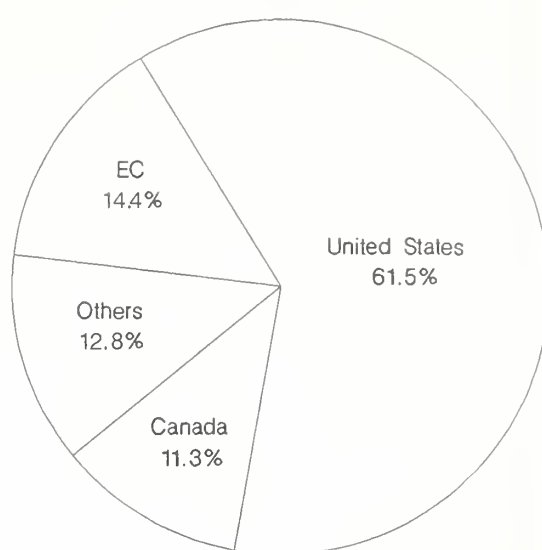


Table 1—Multilateral share of grain food aid

Year	Total grain food aid	Multilateral food aid	Multilateral share
	1,000 tons		Percent
1970	12,508.7	1,738.7	13.9
1971	12,750.4	2,295.1	18.0
1972	10,135.5	1,702.8	16.8
1973	5,970.2	1,271.7	21.3
1974	8,746.5	1,369.1	15.7
1975	6,970.9	1,513.0	21.7
1976	9,220.5	1,759.0	19.1
1977	9,313.2	2,101.0	22.6
1978	9,579.4	2,173.6	22.7
1979	9,011.6	1,910.9	21.2
1980	8,962.4	2,575.0	28.7
1981	9,285.3	2,157.7	23.2
1982	9,485.6	2,516.0	26.5
1983	9,883.0	2,434.4	24.6
1984	12,570.0	3,304.9	26.3
1985	10,949.2	2,969.0	27.1
1986	12,403.6	3,379.3	27.2
1970-72 average	11 798.2	1,912.2	16.2
1984-86 average	11,974.3	3,217.7	26.9

Source: (11).

## U.S. Grain Assistance Is a Relatively Small Portion of U.S. Grain Exports

Food aid once constituted about half of U.S. grain exports but now is less than 10 percent.

U.S. food aid began in 1955 under the Agricultural Trade Development and Assistance Act of 1954, commonly referred to as Public Law (PL) 480. PL 480 authorized donations and concessional sales to poor and/or developing countries. Through PL 480 concessional aid, the United States donates or supplies commodities under long-term loans at below-market interest rates.

During 1955-64, the first decade of the U.S. food aid program, food aid shipments constituted an average of over half the volume of grain exports. However, grain shortages in 1973-74 sharply reduced food aid shipments. Food aid has since remained a relatively small portion of total grain

exports. Grain aid shipments (including wheat and products, corn, and rice), which averaged 13 million tons annually during the first 15 years of the program, have varied between 5 and 7 million tons in recent years (table 2).

Wheat is the most important commodity in U.S. food aid. Distributions of wheat and wheat products are 4 to 5 times higher than those of corn and rice. Wheat food aid shipments averaged 63 percent of total U.S. exports of wheat and wheat products during the first 18 years of the program. That share fell sharply in 1973 and remained below 20 percent through 1986 (fig. 2).

Figure 2

### U.S. food aid and wheat exports

Million tons



**Table 2—U.S. food aid share of total grain exports**

Year	U.S. grain exports	U.S. food aid	Food aid share of shipments
	<i>Million tons</i>		<i>Percent</i>
1955	10.5	4.7	45.1
1956	13.0	8.9	68.6
1957	20.9	13.4	64.1
1958	16.6	8.5	51.4
1959	18.5	9.9	53.2
1960	20.6	12.5	60.6
1961	26.0	14.7	56.7
1962	31.0	16.4	53.0
1963	28.7	15.2	53.0
1964	36.8	15.8	43.0
1965	35.3	17.2	48.7
1966	41.7	17.0	40.7
1967	34.2	12.2	35.7
1968	38.1	14.5	38.0
1969	29.9	9.7	32.5
1970	33.8	10.7	31.7
1971	34.6	10.8	31.3
1972	38.8	10.7	27.5
1973	65.8	7.4	11.2
1974	60.5	2.5	4.2
1975	61.5	4.0	6.5
1976	75.5	4.1	5.4
1977	69.5	8.1	11.7
1978	84.0	6.8	8.1
1979	88.9	6.6	7.5
1980	101.6	5.3	5.3
1981	107.9	5.1	4.7
1982	99.6	5.0	5.0
1983	87.7	5.7	6.5
1984	93.8	6.5	6.9
1985	78.9	6.9	8.8
1986	61.4	5.9	9.7

Sources: (34, 49).

## Recipients of U.S. Food Aid Change Over Time

**Distribution of U.S. food aid among developing countries changes over time, depending on recipients' needs and shifts in U.S. political and trade objectives.**

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The geographic distribution of (large-scale) recipients has shifted from Asia to Africa. Bangladesh, India, Pakistan, Egypt, and Sri Lanka were the major recipients of U.S. grain food aid in 1975 (table 3). Bangladesh and India each received more than 1 million tons of U.S. food aid during that year. By 1985, Egypt, Sudan, Morocco, Bangladesh, and Pakistan became the major recipients. Egypt received the most U.S. assistance, over four times the amount shipped to Sudan, the second in rank. India's success in grain production has greatly reduced the need for food aid in most years. Egypt's important position among 1975 and 1985 recipients reflects higher levels of U.S. assistance following Egypt's political and economic policy shift toward Western countries in 1973.

Shifts in destinations of U.S. aid often reflect changes in the recipients' food and economic situations as well as U.S. trade and political interests. Sudan and Morocco have been among the major recipients of PL 480 food aid since the late 1970's. Most of Sudan's food aid has come through concessional sales, which help soften Sudan's balance of payments problems stemming from the country's poor financial condition (external debt is 83 percent of Sudan's gross domestic product). In 1985, Sudan suffered a drought-induced production shortfall. While wheat shipments increased by about 100,000 tons that year, most of the emergency food aid was for sorghum (sorghum is not included in this study). Morocco's food assistance from the United States is mostly wheat, about 80 percent as sales under long-term loans and 20 percent as donations to feeding programs (the different types of PL 480 programs are defined later in the *Background of U.S. Food Aid* section). Food aid to Morocco is not directly related to production shortfalls as in

most other countries. Instead, food aid is used more for economic and trade support. Morocco has a chronic deficit in wheat (production does not meet demand) and lacks the foreign exchange to finance enough wheat imports.

The rank of recipients of U.S. food aid changes for both 1975 and 1985 when examining U.S. food aid on a per capita basis. Egypt received the most aid (15 kilograms) per capita in 1975. Other countries receiving more than 10 kilograms (kg) per capita include Cape Verde, Bangladesh, Sri Lanka, Honduras, and Pakistan (table 4). Asian countries had large food imports and also ranked high in total food aid. Although Honduras did not rank high in total food aid compared with more populous countries, Honduras was a large recipient per capita. Honduras suffered two natural disasters in 1974-75: a hurricane that caused extensive damage to bananas (the main export crop) in late 1974 and a drought in early 1975. As a result, the United States first provided food aid to Honduras as sales under long-term loans in 1975.

Smaller countries were the recipients of the largest per capita food aid in 1985. The 1985 rank places two countries receiving relatively low total food aid at the top of the per capita list (table 4). Jamaica received the most aid (56 kg) per capita, followed by Cape Verde. With a population of 2.4 million in 1985, Jamaica imported a large share of its grain needs, mainly wheat and corn. U.S. food aid (mostly sales under long-term loans) is used to help finance these imports. Cape Verde is a small, impoverished country whose population of 325,000 relies on imports for most of its food. Drought has plagued this country since the early 1970's, and donors have responded with emergency aid. Egypt, El Salvador, and Lesotho have also received relatively large amounts per capita.



**Table 3—Major recipients of U.S. food aid, by total quantity**

1975 recipient	Total U.S. aid	1985 recipient	Total U.S. aid
	<i>1,000 tons</i>		<i>1,000 tons</i>
Bangladesh	1,155.6	Egypt	2,005.2
India	1,135.2	Sudan	456.5
Pakistan	764.4	Morocco	433.8
Egypt	580.8	Bangladesh	341.1
Sri Lanka	150.5	Pakistan	335.4
Vietnam	53.7	Indonesia	249.4
Tanzania	41.7	India	242.4
Honduras	33.5	Kenya	187.8
Morocco	33.3	Peru	170.1
Haiti	30.8	El Salvador	166.5
Guinea	30.2	Ethiopia	156.4
Tunisia	24.5	Philippines	139.6
Colombia	21.7	Sri Lanka	137.6

Source: (34).

**Table 4—Major recipients of U.S. food aid, per capita ranking**

1975 recipient	U.S. aid per capita	1985 recipient	U.S. aid per capita
	<i>kilograms</i>		<i>kilograms</i>
Egypt	15.7	Jamaica	56.4
Cape Verde	15.7	Cape Verde	41.9
Bangladesh	15.2	Egypt	40.8
Sri Lanka	11.0	El Salvador	33.4
Honduras	10.6	Lesotho	20.7
Pakistan	10.2	Sudan	19.9
Guinea	6.9	Honduras	19.7
Lesotho	6.4	Morocco	18.8
Haiti	6.2	Haiti	18.0
Tunisia	4.3	Bolivia	17.2
Mauritius	3.2	Mauritania	17.0
Togo	3.2	Mali	13.5
Somalia	2.6	Dominican Republic	13.1

Source: Calculated from (34).

## The EC's Share of Grain Aid by Major Donors More Than Doubled Between 1975 and 1985

EC grain exports and food aid have expanded rapidly, although food aid's share of exports has declined. EC food aid contributions shifted from Asian to African nations, similar to the shifts in U.S. aid.

The 1970's and 1980's were times of rapid expansion in EC grain exports as the EC shifted from a net grain importer to an exporter. The EC became a major food aid donor in the late 1960's. (All data on EC trade are gross exports to countries outside the EC. Unavailability of consistent data limited the analysis of EC food aid to the period since 1970.)

### EC Food Aid

EC aid grew rapidly along with production and exports. On average, EC grain exports grew by more than 12 percent a year between 1970-72 and 1984-86. Food aid shipments expanded by 8 percent a year, almost doubling EC donations from 1 to 2 million tons during this period (fig. 3). Food aid nonetheless remains a relatively small portion of EC grain exports (table 5). Grain aid shipments, which averaged less than 1 million tons in the early 1970's, varied slightly between 1.6 and 1.8 million tons during the 1980's, except for the period of the African food crisis in 1984-85. Wheat and wheat flour are the major commodities allocated in EC food aid. All EC food aid is given on a grant basis.

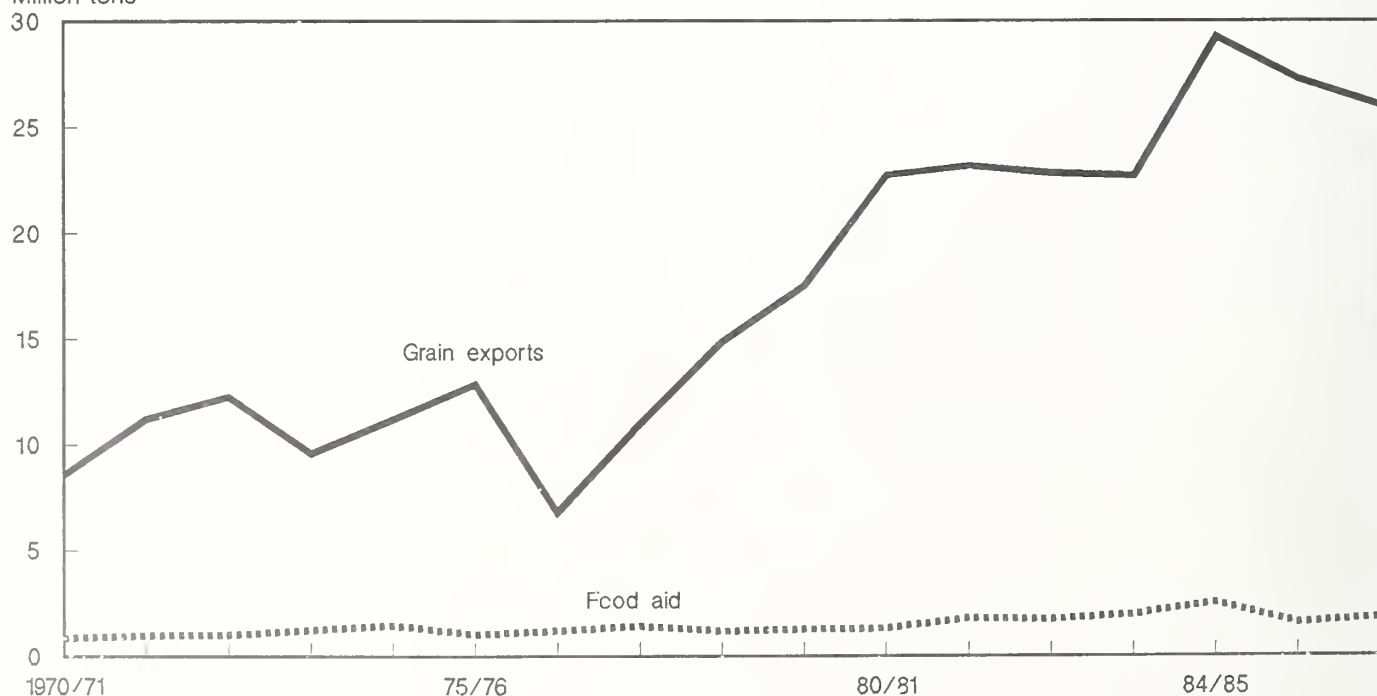
### EC Aid Recipients

Major recipients of EC aid include low-income countries unable to import food commercially and middle-income countries that import some food commercially. Bangladesh, India, Egypt, Tunisia, and Pakistan received the most EC food aid in 1975. Bangladesh and India were by far the largest recipients (table 6). By 1985, Ethiopia became the largest recipient. Ethiopia's new position reflects the second year of a food crisis, during which time EC food shipments to Ethiopia were unusually high. Ethiopia and Mozambique replaced India and Tunisia in the top five recipients of EC aid. As stated, India's increased grain production has reduced its imports. Shipments to Bangladesh, Egypt, and Pakistan increased between 1975 and 1985.

Among the major recipients of EC food aid, Bangladesh almost completely depends on food aid. Bangladesh buys almost no grain from the EC commercially. Egypt, on the other hand, relies on food aid for only 10-15 percent of its wheat and flour imports from the EC. About 30 percent of the EC's wheat exports to Ethiopia in the 1980's

Figure 3  
EC food aid and grain exports

Million tons





have been commercial sales. While the EC sold some wheat commercially to India during the mid-1970's, India no longer imports significant amounts of wheat except during occasional drought years.

The major recipients of total EC food aid tend to be countries with large populations. But on a per capita basis, less populous countries move to the top of the list of EC aid. Cape Verde and Mauritius received the most in per capita aid from the EC in 1975. Cape Verde remained the top recipient in 1985, followed by Mauritania and Mozambique (table 7). Cape Verde received 6,000 tons of EC food aid in 1975 and 24,000 tons in 1985. Tunisia (1975) and Ethiopia (1985) were also large recipients of per capita aid.

**Table 5—Food aid share of EC grain exports**

Year	EC grain exports	EC food aid	Food aid share of shipments
	1,000 tons		Percent
1970/71	8,581	857	10.0
1971/72	11,224	986	8.8
1972/73	12,253	1,017	8.3
1973/74	9,578	1,238	12.9
1974/75	11,190	1,469	13.1
1975/76	12,854	1,023	8.0
1976/77	6,784	1,202	17.7
1977/78	10,993	1,423	12.9
1978/79	14,862	1,182	8.0
1979/80	17,509	1,270	7.3
1980/81	22,717	1,299	5.7
1981/82	23,145	1,778	7.7
1982/83	22,805	1,735	7.6
1983/84	22,688	1,957	8.6
1984/85	29,251	2,518	8.6
1985/86	27,250	1,569	5.8
1986/87	26,000	1,769	6.8

Sources: (5, 11).

**Table 6—Major recipients of EC food aid, by total quantity**

1975 recipient	Total EC aid	1985 recipient	Total EC aid
	1,000 tons		1,000 tons
Bangladesh	144.4	Ethiopia	299.0
India	143.4	Bangladesh	151.5
Egypt	98.3	Egypt	129.2
Tunisia	49.5	Pakistan	123.0
Pakistan	48.5	Mozambique	99.3
Sri Lanka	35.0	Sudan	60.7
Niger	24.0	Mauritania	60.4
Ethiopia	23.8	Sri Lanka	40.0
Sudan	23.7	Kenya	31.2
Tanzania	21.5	Tanzania	27.9
Indonesia	20.1	Madagascar	27.8
Mauritania	18.3	Senegal	24.4
Yemen Arab Republic	17.2	Cape Verde	24.2

Source: (11).

**Table 7—Major recipients of EC food aid, per capita ranking**

1975 recipient	EC aid per capita	1985 recipient	EC aid per capita
	kilograms		kilograms
Cape Verde	21.1	Cape Verde	74.0
Mauritius	15.3	Mauritania	36.5
Mauritania	13.4	Mozambique	7.3
Tunisia	8.7	Ethiopia	7.1
Niger	5.1	Nicaragua	6.3
Yemen Arab Republic	3.6	Lebanon	5.2
Egypt	2.7	The Gambia	5.2
Sri Lanka	2.6	Chad	4.8
Benin	2.2	Lesotho	4.6
Mali	2.1	Sierra Leone	3.9
The Gambia	2.1	Haiti	3.8
Bangladesh	1.9	Senegal	3.6
Somalia	1.6	Zambia	3.4

Source: Calculated from (11).

## Food Aid's Share of Canadian Grain Exports Remained Fairly Constant Over Time

Total grain exports grew faster than food aid between 1970 and 1976.

Canada provided food aid since the early 1950's, making this aid program the oldest next to that of the United States. The need to move agricultural surpluses after World War II was behind early Canadian initiatives. The food aid share of Canadian grain exports has remained fairly constant over time, with a higher share in the mid-1970's and a lower share in the early 1980's (table 8). The unavailability of consistent data limited the analysis of Canadian food aid to the period since 1970.

### Canadian Food Aid

Food aid has played a minor role in Canadian grain exports, averaging only 4 percent of the total. The growth rates for Canadian grain exports and food aid shipments are lower than those of the United States or the EC. While total grain exports increased 2.4 percent a year from 1970 to 1986, food aid grew only 0.5 percent (fig. 4). (This is based on a 3-year average at the beginning and end of the period.) Wheat and wheat flour are the

major commodities in Canadian food aid donations, which are all made on a grant basis.

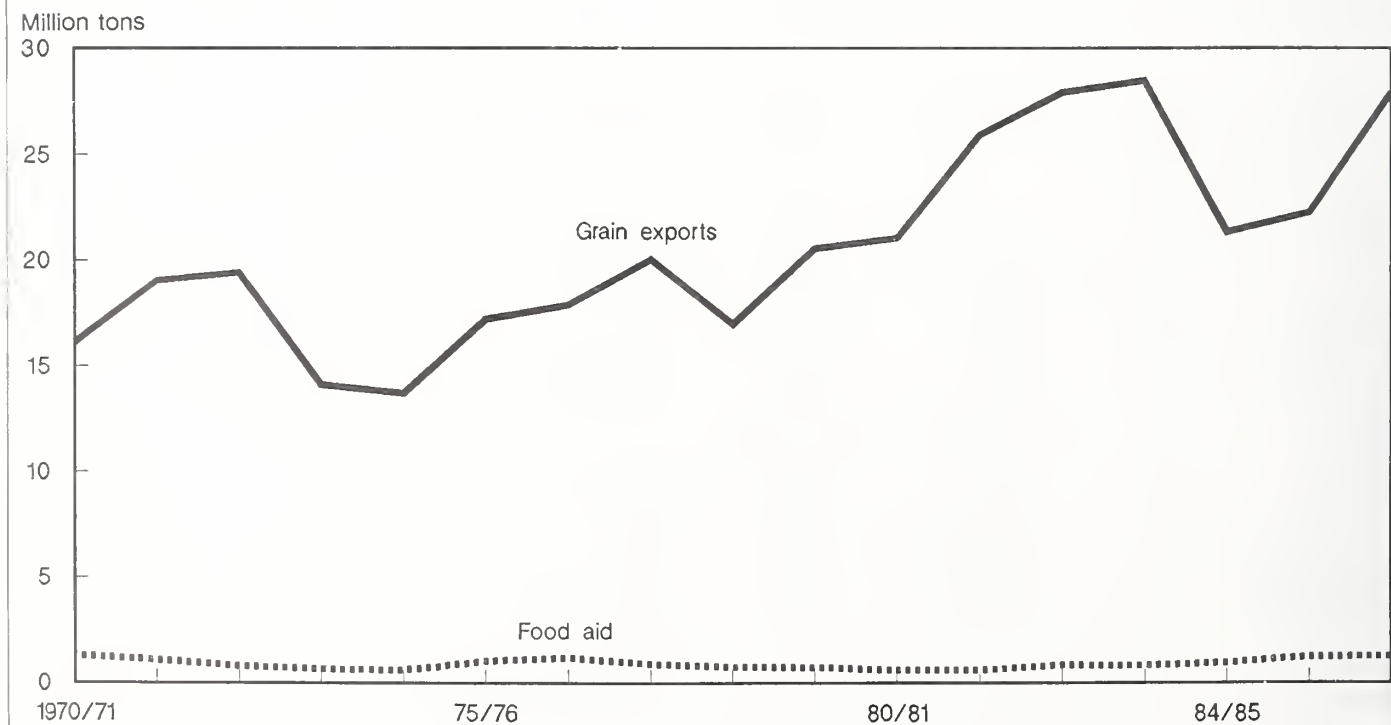
### Canadian Aid Recipients

The profile of Canadian recipients follows that for the United States and the EC. Canadian recipients include both low- and middle-income countries with a large variation in the ratio of commercial imports to food aid imports. More populous countries were the largest recipients of total food aid. India, Pakistan, Bangladesh, Sri Lanka, and Ethiopia were the top recipients of Canadian food aid in 1975. By 1985, Bangladesh received the most Canadian assistance, followed by Sri Lanka, Ethiopia, Pakistan, and Sudan (table 9). As with EC shipments, almost all Canadian grain exports to Bangladesh are food aid.

Most of Canadian grain exports to Sri Lanka are shipments of wheat and wheat flour. These shipments have largely been food aid, except for in

Figure 4

### Canadian food aid and grain exports



1983 and 1984 when Canada replaced the United States and France as a commercial supplier in this very competitive market. Canadian food aid to Sri Lanka rose in the mid-1980's in response to the country's deteriorating economic situation caused by civil strife. While food aid accounts for most of Canada's wheat shipments to Ethiopia, Canada has sold some grains commercially there in recent years.

On a per capita basis, Sri Lanka ranked high among recipients of Canadian food aid in both 1975 and 1985. In 1975, two Sahelian countries, Niger and Mali, ranked first and second (table 10). Food aid to the Sahel was high during the mid-1970's in response to the 1972-73 drought. Lebanon and Mauritania were also large per capita recipients of Canadian food aid in 1985.

**Table 8—Food aid share of Canadian grain exports**

Year	Canadian grain exports	Canadian food aid	Food aid share of shipments
	1,000 tons		Percent
1970/71	16,122	1,304	8.1
1971/72	19,052	1,093	5.7
1972/73	19,432	808	4.2
1973/74	14,130	664	4.7
1974/75	13,722	612	4.5
1975/76	17,221	1,038	6.0
1976/77	17,885	1,201	6.7
1977/78	20,029	902	4.5
1978/79	16,974	758	4.5
1979/80	20,557	740	3.6
1980/81	21,046	600	2.9
1981/82	25,901	600	2.3
1982/83	27,924	843	3.0
1983/84	28,480	817	2.9
1984/85	21,329	943	4.4
1985/86	22,247	1,229	5.5
1986/87	27,905	1,240	4.4

Sources: United Nations trade data and (11).

**Table 9—Major recipients of Canadian food aid, by total quantity**

1975 recipient	Total Canadian aid	1985 recipient	Total Canadian aid
	1,000 tons		1,000 tons
India	365.3	Bangladesh	506.4
Pakistan	215.2	Sri Lanka	107.9
Bangladesh	182.7	Ethiopia	85.8
Sri Lanka	46.2	Pakistan	36.0
Ethiopia	38.9	Sudan	34.0
Ghana	23.2	Ghana	17.9
Mali	23.0	Egypt	16.6
Niger	21.0	Lebanon	15.9
Tanzania	20.6	Zambia	10.3
Indonesia	18.7	Mauritania	10.0
Vietnam	10.0	Nicaragua	9.8
Yemen, People's Democratic Republic	8.6	Morocco	9.2
Somalia	7.1	Senegal	8.4

Source: (11).

**Table 10—Major recipients of Canadian food aid, per capita ranking**

1975 recipient	Canadian aid per capita	1985 recipient	Canadian aid per capita
	kilograms		kilograms
Niger	4.4	Sri Lanka	6.6
Mali	3.7	Lebanon	6.1
Sri Lanka	3.4	Mauritania	6.0
Pakistan	2.9	Bangladesh	5.0
Bangladesh	2.4	Nicaragua	3.0
Ghana	2.3	Ethiopia	2.0
Lebanon	2.2	Honduras	1.5
Cape Verde	2.1	Zambia	1.5
Somalia	1.7	Sudan	1.5
Tanzania	1.3	Ghana	1.4
Ethiopia	1.1	Senegal	1.2
India	.6	Rwanda	.9
Haiti	.6	Yemen Arab Republic	.9

Source: Calculated from (11).

### The Focus of U.S. Food Aid Policy Has Shifted Over Time

In response to economic and political conditions at home and abroad, the focus of U.S. food aid policies has shifted among surplus disposal, humanitarian concerns, market development, and foreign political support.

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#### Historical Background

Food aid became an important part of U.S. economic assistance after World War II, when the United States provided financial aid and food aid to Europe under the Marshall Plan. The effective use of foreign assistance showed the success of such programs to policymakers.

Under the Marshall Plan's European Recovery Program, U.S. foods supported Europe by feeding the population involved in the rebuilding. That food assistance also provided export markets for increased U.S. postwar production. Such additional outlets for growing U.S. agricultural surpluses helped legitimize the increasing costs of farm programs.

#### Shifts In U.S. Attention

As the economies of Western Europe grew, U.S. aid shifted to developing countries and toward other parts of the world. The Mutual Security Act of 1951 authorized food aid for defense-related purposes. This act emphasized the use of economic and military aid for the security of noncommunist countries. During this period, the Korean War (1950-53) increased the demand for U.S. agricultural products.

Growing U.S. agricultural surpluses became a central issue after the Korean War. Surpluses were exacerbated by rapid development of agricultural technologies that further accelerated production growth. Social and political pressures to support farm income increased as Government stocks accumulated more commodities and as prices declined (fig. 5). (See following discussion for effect of Government policies on stocks over time.) As a result, the Government sought other outlets for unmarketable surplus commodities. Food aid became a feasible option, because it could help the United States both at home and abroad. Food aid could reduce grain stocks, raise prices, and, through humanitarian and economic missions, ensure support from the international community.

The Agricultural Trade Development and Assistance Act of 1954 (PL 480) was enacted for disposing of

surplus commodities and developing markets for U.S. agricultural products. PL 480 was also aimed toward improving nutritional levels and supporting economic development in recipient countries by making food available as grants or on concessional terms. These objectives were to be carried out under three programs:

- Title I authorized commodity sales under long-term loans to be repaid in local currency. Those currencies could be used for economic development in developing countries, U.S. market development, payment of U.S. obligations, and purchases of goods and services from other countries.
- Title II provided food as a grant for emergency relief.
- Title III authorized food donations to private, voluntary organizations to distribute domestically or to needy countries.

While food aid was originally conceived to solve domestic surplus problems, the issue and the implications of trading agricultural commodities on the international market at below-market prices became a major international concern. In 1954, at the request of the Food and Agriculture Organization of the United Nations, the Subcommittee on Surplus Disposal was established to constrain U.S. practices of surplus disposal and to encourage exporting countries to adopt responsible trade policies.

The Food Aid Convention was also an important step in the world's joining the United States in providing aid. For many years, almost all food aid had been provided by the United States, with some contributions from Canada. The belief that surplus production would not continue while the need for food aid would grow sharply, particularly in Asia, led to the negotiation of the Food Aid Convention in 1967. In the convention (which was convened once, but the agreement has been renewed and reapproved over time), a number of governments legally bound themselves to provide a minimum quantity of food aid. However, the policies of participant donors have not been

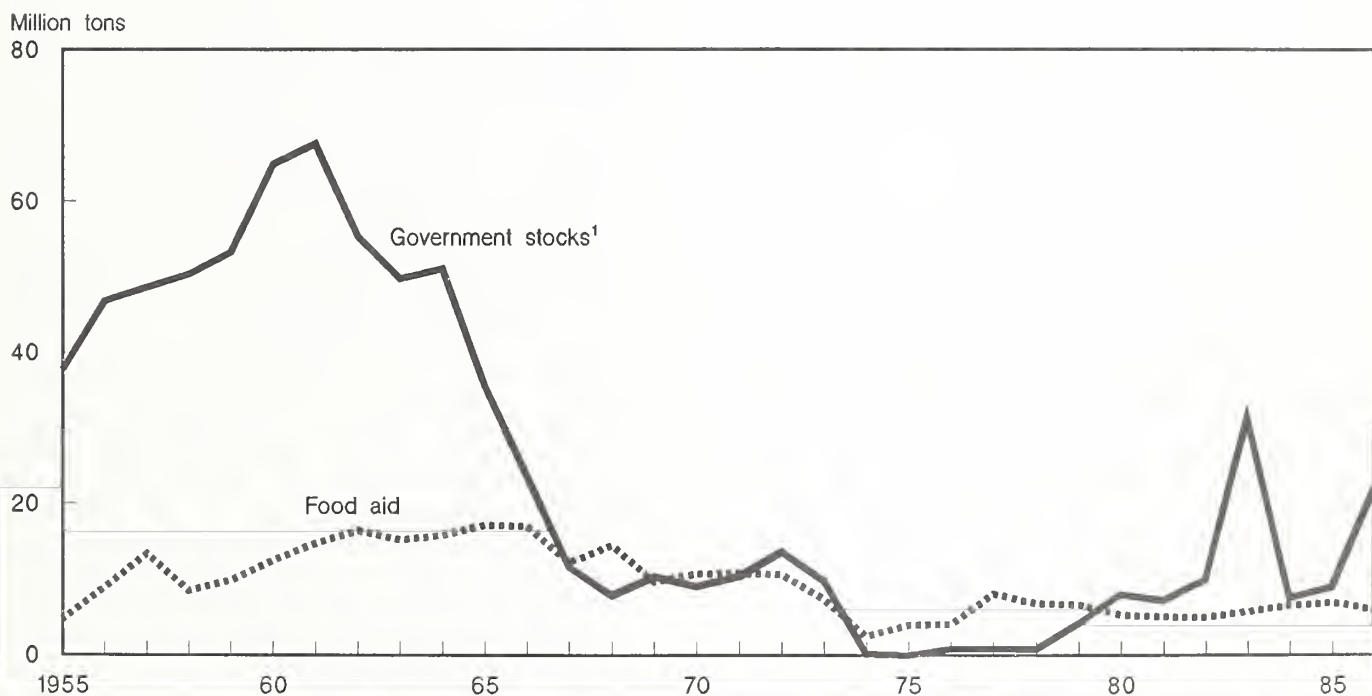


uniform and have been adjusted in response to domestic and foreign pressures.

The focus of U.S. food aid policies has changed since the establishment of its food aid programs, responding to both domestic and international economic and political conditions. The emphasis has shifted among several objectives, depending on the relative strength of these domestic and international pressures at a given time: surplus disposal, humanitarian concerns, market development, and foreign political support.

Responsibility for program planning is shared by various U.S. Government agencies, including the U.S. Department of Agriculture (USDA), the Agency for International Development, the Department of State, the Office of Management and Budget, and the Department of the Treasury. The PL 480 planning process consists of three sequential steps that occur before the beginning of the fiscal year: the executive branch formulates the budget, Congress appropriates the funds, and an inter-agency working group determines the country/ commodity allocations and transmits them to Congress for approval.

Figure 5  
**Levels of U.S. Government stocks and food aid**



1/ Wheat and wheat flour, rice, and corn stocks held by the Commodity Credit Corporation (CCC).

## Levels of U.S. Food Aid Reflect Changes In Domestic Policy Priorities

U.S. food aid policy can be understood by examining the interaction between the domestic agricultural situation and foreign policy goals.

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Food aid used to constitute over half of U.S. grain exports. That share has declined to about 7 percent in recent years due to changes in many domestic and international conditions. The following periods relate the changes in U.S. food aid policy, levels of food aid, and the environment in which these changes occurred.

### 1954-59

The United States was faced with domestic food surpluses and was thus concerned with developing markets for U.S. products. Although domestic policies were not designed to create permanent surpluses, PL 480 was enacted to combat growth in stock costs and address humanitarian concerns (expressed in part through voluntary agencies). PL 480 successfully merged surplus disposal and food-relief objectives.

### 1960-63

Food aid's role in disposing of surplus commodities continued. Despite the growing share of food aid in grain exports, Government grain stocks held by the Commodity Credit Corporation (CCC) reached a record 68 million tons in 1961. Meanwhile, prices and farm income fell from 1950 levels. But lower prices did not reduce production because technological revolutions increased productivity and set new production records (37, 45).<sup>1</sup> Acreage controls were adopted to reduce increasing farm output in the 1960's. The combination of production controls and food aid policies effectively reduced stocks and increased exports.

### 1964-68

Commercial exports rose sharply in 1964, about 50 percent above 1963 levels. Improved export markets, led by demand growth in developing countries, shifted attention from reducing U.S. surpluses to stimulating demand in those countries. U.S. food aid was seen as a way to support economic development in developing countries and to generate effective demand for imports of U.S. agricultural products. The Food for Peace Act of

1966 encouraged the use of food aid to promote self-help measures for economic development, changing the rationale for food aid to a development tool rather than a means of surplus disposal. During this period, voluntary production controls replaced the mandatory acreage reduction programs. A reserve for agricultural commodities was proposed both to protect U.S. consumers against price and production variations and to respond to foreign humanitarian objectives.

### 1969-74

Domestic and international events changed the rationale for food aid. A few years of bad weather and concerns over the U.S. balance of trade and inflation placed all Government expenditures under scrutiny. The administration sought reduced Government intervention in agriculture to gain market efficiency and increase exports to improve the trade balance. Although the growing costs of farm programs were partly responsible for the adoption of a free-market agricultural trade policy, the sudden growth in demand for U.S. grains during 1972-73 (grain exports doubled in 1 year) was the major factor. CCC grain stocks plummeted from about 10 million tons in 1973 to 170,000 tons in 1974, and grain prices doubled. As a result of tighter domestic supplies and higher prices, food aid shipments' share of exports declined significantly, from about half of commercial exports in 1970-72 to 12 percent in 1973 and to 4 percent in 1974. In response to declining Government stocks, USDA relaxed production controls for the 1973 crop year and removed the controls in 1974.

The early 1970's were difficult for developing countries. They faced rising food prices and the shock of petroleum price hikes. Pressured by growing demand in commercial markets, U.S. economic considerations outweighed foreign policy concerns, and the volume of food aid fell in 1974 to its lowest level since enactment of PL 480. At the same time, the country allocation of U.S. food aid shifted and became concentrated in Southeast Asia. U.S. involvement there resulted in increased food aid to Vietnam and Cambodia as other types of economic assistance were restricted by Congress. Nearly half of total U.S. food aid went to South Vietnam and Cambodia in 1973.

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<sup>1</sup> Italicized numbers in parentheses refer to literature cited in the References section.

## 1975-80

The United States was unable to supply enough grain to meet increased demand in 1973-74. The administration responded by giving preference in grain aid shipments to Title II grant food aid over Title I sales with long-term loans. With declining food aid, Congress initiated more humanitarian criteria for receiving food aid by passing the International Development and Food Assistance Act of 1975. This act promoted humanitarian and agricultural development features of U.S. food aid by specifying that no more than 25 percent of Title I assistance be allocated to countries with annual per capita incomes above the International Development Association (IDA) poverty level (then set at \$300). The act set a 1.3-million-ton minimum for total Title II assistance. The IDA poverty criterion and the minimum Title II allocation were increased throughout the late 1970's. A new Title III Food for Development Program was added in 1977. Title III agreements forgave Title I long-term loans if the recipient country met specified development goals. The Title I sales' proceeds were then to be used for development. Title III also specified that food aid must not substantially reduce incentives to produce food in recipient countries. The 1977 amendments added that in times of urgent humanitarian need, commodities could be authorized for PL 480 aid even if U.S. supplies were limited.

During the late 1970's, grain output expanded in major trading countries. As export demand declined, the United States rebuilt stocks. U.S. foreign policy was directed toward promoting human rights, contributing to economic development, and meeting basic human needs. While U.S. food aid remained at about \$1.5 billion throughout the late 1970's, the food aid share of total grain exports declined as the value of total agricultural exports almost doubled. The Food Security Wheat Reserve Act of 1980 set aside 4 million tons of Government-owned wheat for emergency food needs in developing countries. This reserve was to be distributed when U.S. supplies were limited or when normal PL 480 procedures precluded a quick response.

## 1981-86

Few amendments were added to food aid legislation in the early 1980's. Stricter self-help criteria were established in 1982. Appropriations for emergency needs in Africa were increased in 1984.

The Food Security Act of 1985 emphasized local private participation in self-help in recipient countries. For example, the act authorized use of foreign currencies accruing under Title I for developing private enterprises and enhancing food security through local food production.

Under a new Food for Progress Program, U.S. food aid was to be provided to developing countries that would expand the role of the private sector in the local agricultural economy. The minimum requirement for total Title II aid was increased to 1.9-million tons for fiscal years (October through September) 1987-90, of which 1.4-million tons were to go to nonemergency programs and were to be distributed through private voluntary organizations and the World Food Program. At least 75 percent of the nonemergency minimum had to be processed, nutritionally fortified, and/or bagged commodities.

Budgets for food aid were reduced during 1982 and 1983. In 1985, however, the value of total food aid increased to a record \$2 billion due to increased allocations for Africa. The food aid share of total U.S. agricultural exports doubled from 3 to 6 percent, primarily from declining commercial exports. The U.S. share of global food aid continued to decline, from 67 percent in 1976/77 (July-June) to 57 percent in 1983/84. Falling world grain prices and large supplies enabled donors to respond generously during the African food crisis of 1984-85.

A number of factors converged to support lower levels of U.S. food aid in the 1980's. Large U.S. exports eliminated the need for domestic acreage control programs in 1980 and 1981. World grain prices began declining (in nominal terms) in 1982. (Nominal prices are expressed in current dollars of each year and are not adjusted for inflation.) The U.S. share of world grain trade fell sharply as high domestic prices and the strong dollar (relative to other major grain exporters' currencies) reduced U.S. competitiveness in world markets by making U.S. products more expensive. U.S. grain exports decreased from 115 million tons in 1980/81 to 63 million tons in 1985/86. Increased competition in world markets and lower grain and petroleum prices enabled developing countries to finance a larger share of grain imports on commercial or easy credit terms under other export-promotion programs in the mid-1980's.



## **Domestic and International Factors Result In Changes In EC and Canadian Food Aid Directions**

**Early programs for distributing surplus commodities have broadened and changed in both the EC and Canada in response to domestic and international conditions.**

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From 1945 to 1965, food assistance came almost totally from the United States because of U.S. economic and agricultural dominance. As U.S. stocks declined and demand for food aid increased, the United States sought wider participation in food aid programs from other nations. Although they have shorter histories in food aid, the EC and Canada are the largest contributors behind the United States. Both the mission for and the levels of their food aid have changed in response to domestic and international conditions.

### **EC Food Aid**

The EC market position in world trade has improved substantially since European nations joined together and formed the Common Agricultural Policy (CAP) in 1960, which includes both internal supports and trade policies. Since the CAP, the EC has collectively shifted from being a large net importer to a major net exporter of grains. The CAP promotes agricultural productivity, stabilizes markets, and guarantees food security for member nations. CAP policies are confined to the area of trade within the customs' jurisdictions of member countries.

Early European food aid (prior to 1968) was primarily limited to responding to emergency needs in developing countries, with little regard to geographic distribution. Aid from individual European nations was channeled mainly through multilateral organizations, such as the World Food Program.

The EC has generally given priority to development issues, including food aid, in its economic policy toward developing countries. EC food aid was more of an altruistic method of relieving emergency food situations than an effective tool in developing markets.

EC food aid expanded in 1968 as one of the outcomes of the Kennedy Round of the General Agreement on Tariffs and Trade (GATT, an international board that sets world trade levels and settles trade disputes) of 1964-67. Following the GATT negotiations and the subsequent Food Aid

Convention, the EC became an active contributor to international food aid programs. Under the terms of the convention, food aid from participants was to remove some of the largest exporting countries' grain from the commercial market, provide opportunities for U.S. commercial exports, and help meet food needs in developing countries. The growing food needs were manifested in heavily populated developing countries, especially in India which was faced with a severe food shortage. Under the terms of the 1967 convention, the United States and 11 other developed countries committed to provide 4.5 million tons of grain on grant terms. The U.S. share was 1.9 million tons (42 percent of the convention's total contribution), which was only a small part of total U.S. grain aid (14 million tons in 1967). But the convention significantly increased contributions of other donors, especially the EC. The convention agreement required the EC to assume a major responsibility in providing cereals. The EC (comprised of six member nations at that time) was initially committed to provide 1.04 million tons of cereals (mainly wheat) in aid.

According to Wallerstein, without the convention commitment, EC food aid would have been limited to disposal of surplus dairy products (51). Donating cereals while remaining a net cereal importer began to move the EC away from surplus disposal toward food aid for development and humanitarian purposes. Nevertheless, the composition of EC commodity aid remained a function of distributing surpluses that could not find commercial markets in developing countries. For example, the EC had large surpluses in nongrain commodities, such as butter and milk powder, in the late 1970's and early 1980's. Donations of EC milk powder increased from 118,000 tons in 1977 to 270,000 tons in 1981 but have since declined. The composition of EC aid has expanded since 1983 to include other surplus commodities such as vegetable oil, beans, and dried fish.

### **Country versus Community Policies**

The EC food aid program contains two parts: individual country bilateral food aid and the



Community action program, which is like multilateral aid programs. At the Community level, the EC distributes food aid according to jointly agreed guidelines, either among other multilateral organizations such as the World Food Program or directly to the recipient countries.

The Community's food aid policies often differ from those of member countries. Individual country policies, in fact, could outweigh EC policies for food aid. In addition, providing a continuing program of food aid means disproportional burden sharing among EC members. Agricultural production throughout the EC is not evenly distributed. For example, France is a major exporter and the United Kingdom is a major importer. Since the beginning of the food aid program, the European Food Aid Commission (at the Community level) has been trying to achieve autonomy in food aid policies and improve humanitarian considerations in allocations among recipients.

A large portion of EC food aid is distributed through a wide range of individual country policies rather than on a set of EC guidelines. Most EC members' food aid contributions are based on developmental and humanitarian concerns and favor bilateral contributions through multilateral channels over bilateral programs to reduce the influence of political and trade factors in allocating food aid. With the exception of France, most countries do not distribute the majority of their food aid to former colonies. France provides most of its aid in general and food aid in particular to French-speaking countries, mainly in Africa. The food aid donations of net food importers, such as the United Kingdom and Italy, are in the form of cash distributed among organizations, such as the World Food Program.

With growing financial difficulties and food problems in the developing countries in the 1980's, EC policies emphasized the use of food aid as a development tool. In 1983, the EC Council Resolution on Food Aid and Development introduced multiannual programming of food aid. This program made food aid a more reliable resource in recipient countries by allowing long-term development planning. The EC also broadened the range of commodities available as food aid.

The EC has reviewed the role and mission of its food aid many times. The EC uses income, population, nutritional level, and the degree of dependence on food imports as criteria for food

aid distribution among recipients. One primary goal of the EC's food aid is to fill the gap between commercial imports and total recipient needs. But, there has been discussion of the adverse effect of food aid on the recipients' domestic agricultural production.

For example, food aid is often blamed for shifts in consumption patterns in recipient countries away from locally produced foods to commodities that must be imported (such as wheat). Trilateral transactions and purchases of local food for use as aid are examples of policy changes to avert those consequences. In trilateral transactions, a donor country provides cash to purchase food in a less developed, food-surplus country for delivery to a recipient country. An additional policy adjustment in 1984 provided financial or technical assistance instead of food to developing countries with food surpluses.

In recent years, about 10 percent of the EC food aid budget has been devoted to trilateral transactions. Germany was among the first to support trilateral transactions; Zimbabwe has been a frequent source of the commodities of which Mozambique was a major recipient. This program is an important policy move to reduce the links between food aid and the Community's agricultural surpluses. Only a few multiannual agreements (for aid to Mali and India) were concluded, but the stated intention is to increase these efforts. In 1986, food aid was separated from the management of EC agricultural programs, thereby reducing the role of the members' agricultural intervention boards and allowing more flexibility in food aid timing and allocation criteria.

### **Canadian Policy**

Canada is the third largest food aid donor. Canada has provided food aid since the early 1950's. Canada's early programs, like those of the United States, were established to dispose of surplus production. Canada became a member of the Food Aid Convention in 1967.

As in the United States and the EC, Canadian agricultural regulations and subsidies are extensive. In fiscal year 1978/79, food and technical aid abroad accounted for about 14 percent of total direct government expenditures on farm programs. Canadian agricultural policies are geared toward supporting farmers' income through income-stabilization programs, credit subsidies, and trade promotion. There is adequate social support to

continue these policies. However, some areas of emphasis have shifted in response to growing government program costs.

Current Canadian policy stresses the use of food aid to promote economic development, reduce malnutrition, and provide emergency relief for

developing countries. All Canadian food aid is provided as a grant, with about two-thirds distributed bilaterally under the management of the Canadian International Development Agency (CIDA). Most Canadian food aid is distributed among Asian countries. Canada maintains close ties to the former British colonies in Asia.

## A Model Estimates How Donor Policies and Recipient Needs Affect Food Aid Transfers

**Our three-part model examines what type of factors motivate donors to supply certain commodities as food aid, what factors determine where the food aid goes, and to what extent aid responds to the need of recipients.**

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Internal and external factors played an important role in the policies of food aid distributions over time and will probably continue to do so. Surpluses and slow growth in commercial exports were among domestic factors motivating donors to provide certain commodities. Allocations among recipient countries have been functions of both internal and external concerns, including trade promotion, humanitarian assistance, and economic support.

We developed a three-part model to identify whether changes in certain factors affect food aid, and if so, to what extent. The first two components measure changes in the types and distributions of food aid. The third component measures how those efforts respond to recipients' needs. The text relates each component separately, first by model structure and then by model results.

### The Components

The first two components capture the donors' domestic and international interests in food aid. The commodity allocation component evaluates how surpluses and commercial markets affect donors' food aid levels over time. The country allocation component evaluates how a donor's food aid is distributed among recipient countries. The donors' interests are divided into two parts because we assumed that the donor would first determine the total amount of food aid available, based on domestic considerations. The donor would then allocate the specified commodities among recipient countries, based on foreign policy objectives.

The third component measures the response of donor efforts (individual and collective) in meeting

the needs of recipients. The recipient need component excludes changes in aid due to the donor's economic and political interests and includes only the humanitarian factors from the country allocation component. For example, this component evaluates how donors will assist developing countries that face production shortfalls, limits in availability of foreign exchange, and lack of resources to provide food.

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### Model Framework

To determine what shapes food aid, we divided our analysis into three components:

#### Commodity allocation

Is assumed to be a function of:

- Domestic surpluses
- Commercial markets
- Budgets

#### Country allocation

Is assumed to be based on the donors':

- Economic interests
- Political interests
- Humanitarian concerns

#### Recipient needs

Are assumed to be an outgrowth of:

- Food production performance
- Foreign exchange availability
- Food production resources
- Income

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## Commodity Allocation Component Estimates the Response to Domestic Factors

The level of commodities allocated to food aid varies, in differing degrees, in the United States, EC, and Canada. Through separate equations for each donor, we examine what mix of domestic factors shape the volume of commodities allocated to food aid.

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In the donors' commodity allocation component, we examine what determines the total amount provided for food aid, based on domestic considerations. The close relationship between food aid and the agricultural production and trade of the donor countries has been evident throughout the history of food aid. Other factors such as the donors' budget and developments in commercial markets are also expected to affect the level of food aid.

The model tests the hypothesis that the allocation of food aid is:

- Positively influenced by agricultural surpluses, represented by grain stocks (higher aid with higher stocks),
- Negatively related to commercial market demand, represented by the grain price (lower aid with higher commercial prices), and
- Negatively affected by government budgets, represented by agricultural outlays (lower aid with higher expenditures).

We used an ordinary least squares (OLS) estimation method in linear form to derive regression estimates for the United States, the EC, and Canada. We estimated one equation each for EC and Canadian aid and three equations for U.S.

aid: Title II, other PL 480 programs (including Titles I and III), and total food aid. Title II is a commodity grant for famine and other extraordinary needs and is often used for emergency purposes. The rest of the PL 480 programs, which constitute 60 to 80 percent of the total value of PL 480 aid, are transfers based on concessional sales. Since 1986, some CCC grains have been donated overseas under authority of Section 416(b) of the Agricultural Act of 1949.

In estimating what determines commodity allocations for the United States, we used variables denoting the above domestic factors. We also used a dummy variable (D) to represent the President's political party. The dummy variable was 1 for 1961-68 and 1977-80 (Democratic Party) and 0 otherwise (Republican Party).

In the estimated equations for the EC and Canada, we used a dummy variable to represent their extraordinary relief operations. (The Canadian and EC programs, unlike U.S. Title II programs, have no specific category for emergency aid.) In the EC equation, the dummy variable equaled 1 for the years of severe African food shortages and famine, 1973-74 and 1981-84. In the Canadian equation, the dummy variable equaled 1 for the years of major floods and food shortages in Bangladesh (1971-72) and African food shortages (1981-84).



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## Determinants of Food Aid Under the Commodity Allocation Component

The level of commodity food aid is expressed as a function of a donor's domestic agricultural surpluses (represented by the level of stocks), commercial market developments (represented by the grain price), and budget (represented by growth in government agricultural expenditures). The model tests the hypothesis that for large donors, with means other than food aid to achieve foreign policy objectives, domestic factors shape the overall level of food aid. The donors' criteria for allocating commodities were modeled as follows:

$$FA_{jt} = f(BS_{jt}, PT_t, BD_{jt-1}, D)$$

Expected signs: +BS, -PT, -BD,  $\pm D$

where:

$j$  is the donor country (the United States, EC, or Canada);

$t$  is the time period (1961-86 for the United States and 1970-86 for the EC and Canada);

$FA_{jt}$  is the total quantity of grain food aid by donor  $j$  in metric tons;

$BS_{jt}$  is the beginning grain stocks in country  $j$  in metric tons;

$PT_t$  is the world grain price in dollars per ton;

$BD_{jt-1}$  is the change in donor  $j$ 's government agricultural outlays divided by the Consumer Price Index (CPI), lagged 1 year (in the EC equation, BD is the EC's expenditure on agriculture)<sup>2</sup>; and

$D$  is the dummy variable.

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<sup>2</sup>We estimated the correlation between variables to avoid possible multicollinearity problems. The results generally were less than 1 percent.

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## The Type and the Level of Commodities Allocated Vary Along With Conditions in the Donor's Domestic Environment

**Allocations to food aid by all three major donors generally rise with increased grain stocks, while allocations by the U.S. and Canada generally fall with budgetary pressures.**

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The commodities provided for food aid are assumed to depend on agricultural surpluses, commercial markets, and budgets in donor countries. The degree to which these factors affect the types and amounts of allocations depends on the unique mix of these factors shaping each donor's domestic environment. Table 11 presents the results of the commodity allocation model.

### U.S. Equation

The explanatory variables in the U.S. equation accounted for most of the change in the commodities allocated. That is, changes in those variables were responsible for 89 percent of the variation in the level of Title II aid, 91 percent of other PL 480 programs, and 93 percent of total U.S. grain aid. Changes in beginning stocks (BS), grain price (PT), and agricultural expenditures (BD) were significant factors effecting changes in aid levels in all equations. These results indicate that all government aid programs (emergency and concessional sales) will be affected by changes in agricultural surpluses, commercial market demand, and government budgets.

The significant and positive effect (coefficient) of growing stocks on food aid transfers supports the premise that an increase in stocks directly increases the level of food aid, even with less apparent emphasis on surplus disposal. This finding is consistent with Konandreas's findings (27).

Grain price also produced a significant, but negative, effect. This result indicates that growing demand in commercial markets competes with food aid transfers. Budgetary pressures also lead to a decline in food aid programs, as seen in the negative and significant relationship between agricultural outlays and food aid. The dummy variable representing changes in political parties did not significantly affect the equation for Title II aid. But changes in political parties showed a positive and significant relationship to PL 480 Title I aid and aggregate U.S. aid.

### EC Equation

The explanatory variables accounted for 57 percent of the variation in food aid transfers in the EC

equation. All of the variables except growth in agricultural expenditures (BD) agreed with our hypothesis; that is, the variables had the expected signs. However, beginning stocks (BS) and the dummy variable (D, representing emergency food aid) were the only statistically significant variables. This means that changes in grain prices (PT) and agricultural expenditures (BD) did not significantly affect food aid transfers. The significant relationship between stocks and grain aid means that EC donations grow as surpluses increase. Cathie supports this finding, and argues that although the EC food aid policy on grains emerged in response to burden sharing, the commodities donated vary, depending on surplus production in the EC internal market (4). The reason that the relationship between food aid and grain price (PT) or agricultural expenditures (BD) may not be significant could be because each EC member nation employs different bilateral distribution criteria. As was discussed, EC food aid includes both individual member and Community-wide programs, which are subject to different policies, financial pressures, and institutional controls (2).

### Canadian Equation

The explanatory variables accounted for 60 percent of the variation in food aid in the Canadian equation. Beginning stocks (BS), agricultural expenditures (BD), and the dummy variable (D, representing emergency food aid) were statistically significant factors effecting changes in aid levels. The world grain price variable (PT) was negative but was not significant. Therefore, changes in commercial markets did not significantly affect Canadian food aid transfers. One possible reason is that Canada's food aid is directed more toward development and humanitarian goals than toward domestic agricultural policy goals.

### Donor Commodity Allocations

Domestic factors' effects on commodity allocation are stronger in the United States than in the EC and Canada, as seen in the size of the  $R^2$  for the selected variables in each equation. Part of the reason could be differences in domestic institutions and political pressures in each donor country. The EC's complex administrative procedures and insti-

tutional overlap with member countries give an unclear picture of the goals and management process of transferring food aid (4). While Canada's need to move surplus stocks was a motivating factor in early food aid programs, as in the United States (especially during the 1950's and 1960's), the focus has changed since the 1970's toward using food aid for development of recipient countries. Other findings include:

- Growth in the level of stocks was the common factor affecting donors' food aid transfers,
- Increases in government agricultural outlays tend to reduce food aid transfers in the United States and Canada,
- Changes in political parties did not affect U.S. allocations of food aid for emergencies, and
- EC and Canadian food aid transfers responded positively and significantly to emergency needs of developing countries.

**Table 11—Results of the commodity allocation model**

Donor	Constant	Explanatory variables				R <sup>2</sup>
		BS	PT	BD	D	
United States:						
Title II aid	1.96	0.021* (7.75)	-0.272* (-6.58)	-0.002* (-2.26)	-0.107 (-1.23)	0.89
Other PL 480 programs aid	10.94	.097* (5.07)	-2.271* (-7.88)	-.014* (-1.81)	2.289* (3.79)	.91
Total food aid	12.90	.119* (6.06)	-2.542* (-8.65)	-.016* (-2.09)	2.183* (3.54)	.93
EC	652.63	.037* (2.11)	-.294 (-.06)	15.308 (.14)	632.336* (2.72)	.57
Canada	556.29	.019* (1.71)	-.348 (-.26)	-5.628* (-1.80)	577.100* (4.06)	.60

Numbers in parentheses are t-statistics.

\* = Significant at the 5-percent level of confidence.

## Country Allocation Component Estimates the Factors Underlying the Distribution of Food Aid Among Recipients

Through separate equations for each donor, we examine the relationship between the interests of donors and the needs of recipients.

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The close relationship between food aid and foreign interests (humanitarian, economic, and political) of donor countries has been evident throughout the history of food aid. Donors are assumed to have a variety of interests in allocating food aid among developing countries. Distribution policies of the donor countries include the following objectives:

**Humanitarian:** Improving the low level of food consumption in the recipient country. Donors' policies suggest that food aid has a strong humanitarian mission for improving nutrition in needy countries and for providing emergency food relief.

**Economic:** Expanding and maintaining relationships with friendly countries. Food aid is often provided to help build strong economic and institutional relationships. For example, food aid can support foreign relationships, promote trade growth, and help lighten friendly countries' financial burdens.

**Political:** Providing financial support for economic growth of recipient countries. The lack of adequate or affordable food supplies is often a major cause of urban unrest and regional destabilization. Many governments in developing countries rely on consumer food subsidies to help maintain political stability (such as Egypt, Tunisia, and Morocco).

This component estimates how the above foreign interests affect the way donors allocate food aid among developing countries. We used a pooled equation to test if food aid policies changed between 1975 and 1985, and if the changes were related to the donors' foreign interests. We expect the results to show that a donor's allocation of food aid was negatively related to a recipient country's:

- Food self-sufficiency (SS, represented by food deficits). That is, the donor assisted countries with high dependence on food imports.
- Financial pressures (FP, represented by the ratio of trade balance to gross domestic product, a rough measure of financial

pressures). That is, the donor supported countries with financial problems.

- Per capita income (GNP). That is, allocations went to countries with the lowest incomes.
- Political ideologies (PI). That is, aid was withheld from countries with different political philosophies.

We expect the estimations to show that a donor's allocation of food aid was positively influenced by a recipient country's:

- Emergency condition (WR). That is, the donor's aid was used for emergency food relief.
- Trade growth (TG, represented by the growth in the dollar value of the donor's exports to the recipient's market). That is, the donor supported countries with growing import markets.
- Economic ties (EI, represented by the donor's trade share in the recipient country). That is, the donor supported countries that provided larger market access.

The relationships between per capita food aid (FA) and the recipient's food production (PG) and between FA and the dollar value of the donor's total exports to the recipient (TG) are not clear (that is, they could be positive or negative). A significant positive relationship between FA and PG indicates the donor's support for countries that had some production success. A significant negative relationship between FA and PG means that food aid was used to assist countries with poor production performance. A negative relationship between FA and TG indicates that food aid was used to stimulate trade. A positive relationship means that food aid was used to promote growing markets.

An emergency condition in a recipient country (WR) represents the presence of an internal or external political conflict. For the 1975 equation, WR equaled 1 for Bangladesh, Chad, Congo, Mozambique, Somalia, and Vietnam and 0 for other



countries. For the 1985 equation, WR equaled 1 for Afghanistan, El Salvador, Ethiopia, Haiti, Honduras, Lebanon, Mozambique, Sudan, and Uganda and 0 for other countries. PI represents recipient countries with a close political alliance to centrally planned countries. For the 1975 equation, PI equaled 1 for Afghanistan, Angola, Benin, Chad, Ethiopia, Mozambique, Sudan, Uganda, Vietnam, and the People's Democratic Republic of Yemen (Yemen PDR)

and 0 for other countries. For the 1985 equation, PI equaled 1 for Afghanistan, Angola, Ethiopia, Mozambique, Nicaragua, Vietnam, and Yemen PDR and 0 for other countries.

In the 1975 and 1985 pooled equations, compound growth rates in the volume of recipient countries' grain production and the value of donor countries' exports to the recipient country represent values from 1970-75 and 1980-85, respectively.

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### Determinants of Food Aid Under Country Allocation Component

We analyzed allocations of food aid to recipient countries from cross-country multiple linear regressions using 1975 and 1985 data for 64 countries (app. table 1). We pooled the data with a dummy variable representing changes in aid policies during 1975 and 1985 to test whether there were any significant changes in aid policies between the two periods. The dummy variable was 0 for the 1975 data and 1 for the 1985 data. The donors' criteria for allocating food aid were modeled as follows:

$$FA_{ij} = f(PG_j, SS_j, FP_j, GNP_j, WR_j, EI_{ij}, TG_{ij}, PI_j)$$

Expected signs:  $\pm PG$ ,  $-SS$ ,  $-FP$ ,  $-GNP$ ,  $+WR$ ,  $+EI$ ,  $\pm TG$ ,  $-PI$

where:

$j$  represents the food aid recipient country;

$i$  represents the donor country;

$FA_{ij}$  is per capita food aid transferred from donor  $i$  to recipient  $j$ ;

$PG_j$  is growth in food production in country  $j$ ;

$SS_j$  is food self-sufficiency in country  $j$  (the ratio of food production to the sum of domestic production, commercial imports, and stock changes);

$FP_j$  is the ratio of country  $j$ 's trade balance to its gross domestic product;

$GNP_j$  is per capita income in country  $j$ ;

$WR_j$  is the presence of an emergency condition in country  $j$ ;

$EI_{ij}$  is the dollar value of donor  $i$ 's total exports as a share of country  $j$ 's total imports;

$TG_{ij}$  is the growth in the dollar value of donor  $i$ 's total exports to country  $j$ ; and

$PI_j$  is the political ties of the donor to the recipient country, as captured by a dummy variable.

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**Donors' Foreign Interests Determine Allocations Among Developing Countries, but to Differing Degrees**

**The share of the variation in food aid allocations explained by foreign and political interests increased for the United States over the decade but decreased for the EC and Canada.**

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U.S., EC, and Canadian food aid allocations were not based solely on the donors' foreign political and trade interests. Humanitarian concerns and recipients' economic conditions also influenced distributions. However, the types of factors involved varied among the major donors and between time periods, as did the degrees to which they affected allocations of aid among developing countries. Table 12 presents the results of the country allocation model.

**U.S. Equation**

The explanatory power of the variables was stronger in 1985 than in 1975, accounting for 45 percent of the variation in food aid allocated in 1985 and 29 percent in 1975. Changes in the recipients' food production (PG), financial pressures (FP), economic ties (EI), and political ideologies (PI) were the most significant factors effecting variations in both periods. (The recipients' per capita income was significant only in the first period.) The negative but significant relationship between U.S. food aid and the recipients' food production and financial pressures means that U.S. food aid was used to reduce pressures of food production failures and ease foreign exchange constraints in developing countries. The positive and significant effect of economic ties (EI) suggests that growing institutional and economic alliances led to larger transfers of food aid. The effect of political motivations (PI) on food aid distribution was negative and significant in both periods, meaning that the recipients' political philosophy influenced the level of U.S. food aid transfers.

Other variables--food self-sufficiency (SS), emergency conditions in developing countries (WR), and trade growth in the recipient countries (TG)--did not significantly affect allocations. The pooled equation showed that changes in food aid allocation policies during 1975 and 1985 (as seen in the dummy variable, D) were positive but not significant. This result suggests no major shift in U.S. food aid allocation during the two periods. The signs or the statistical results of the other variables did not change in the pooled results,

indicating a consistent U.S. food aid policy over the decade.

**EC Equation**

In the EC equation, the explanatory variables were much stronger in the earlier period, accounting for 47 percent of the variation in food aid allocations in 1975 and 25 percent in 1985. Production performance (PG) and income (GNP) were the only significant factors (with the expected signs) affecting allocations in both periods. Growth in trade (TG) was positive in both periods but significant only in 1975. This result could indicate that food aid was used to encourage trade expansion with developing countries in the earlier period. The diminished influence of trade growth in 1985 could reflect the economic difficulties in developing countries in 1980-85 (relative to 1975) that led to an overall decline in imports in many cases.

With the decline in trade growth in the 1980's, economic and institutional relationships between donors and recipients seem to have positively influenced EC allocations. The economic alliance (reflected in the donor's trade share, EI) was positive in both periods but significant only in 1985. Recipients' financial pressures (FP) showed an unexpected positive sign in both periods, and food self-sufficiency (SS) changed from positive in 1975 to negative in 1985. The political motivation in aid distributions (as reflected in political ideologies, PI) was positive but was not significant in either period.

Five of the nine variables produced significant responses in the pooled data. The significant positive effects of the institutional/economic alliance (EI) and trade growth (TG) are exclusively related to donor economic and trade interests. Recipients' food production (PG) positively affected allocations, while per capita income (GNP) negatively affected allocations. These results suggest that recipients' economic and food status affect EC food aid allocation decisions. Changes in food aid policy in the two periods (represented by the dummy variable, D) produced a positive significant

response, meaning an increase in food aid allocations in 1985 relative to 1975.

### **Canadian Equation**

In the Canadian relationship, the explanatory variables were stronger in 1975 than in 1985, accounting for 31 percent of the variation in food aid allocations in 1975 and 18 percent in 1985. Economic and institutional alliance (EI) was the only significant variable in both periods. Countries with high dependence on food imports received a larger share of food aid (SS was negative and significant) in 1975, while countries with poor production performance received a larger share of food aid in 1985 (PG was negative and significant). However, in the first period, PG was positive but not significant.

The effect of political ideologies (PI) on allocations was negative in both periods but was significant only in 1975, indicating that political concerns motivated food aid allocations in the earlier period.

In the pooled data, the dummy variable indicates no significant change in Canadian food aid allocation policies from 1975 to 1985. The recipients' food production (PG), self-sufficiency (SS), and economic alliance (EI) with Canada were the significant factors affecting allocations in the pooled equation. Among these three variables, EI was the only significant variable that represented the donor's economic considerations.

### **Donor Allocations Among Developing Countries**

Comparing where donors allocate food aid shows that the variables explained increasing portions of the variation in food aid in U.S. allocations over the decade and decreasing portions of EC and Canadian allocations. Food aid distribution was not based solely on U.S., EC, or Canadian foreign political and trade interests. Humanitarian concerns and the recipients' economic conditions also influenced donors' food aid allocations: at least one of food production, self-sufficiency, financial pressures, or income variables was significant in all equations.

### **Humanitarian Concerns**

The lower income countries received the largest volumes of U.S. and EC food aid in 1975 (GNP was negative and significant for both donors). The lowest income countries (under \$100 in per capita income in 1975) benefiting from this allocation criteria were Bangladesh, Ethiopia, Laos, Mali, Rwanda, and Somalia. Countries showing poor

production performance during 1970-75 also received a large volume of U.S. and EC food aid (PG was negative and significant for both donors). Sri Lanka, Niger, Mozambique, Lebanon, Honduras, Ghana, and Ethiopia showed the lowest relative production performance among recipients in 1970-75, with over 15-percent annual declines in food production. The recipients' financial difficulties were also a significant factor in U.S. and EC policies. Countries with the greatest financial difficulties (measured by the ratio of trade balance to gross domestic product) benefiting from this aid in 1975 were Lebanon, Lesotho, and Yemen PDR. Food self-sufficiency of the recipient countries was a significant factor in country allocations by Canada in 1975. Recipients of Canadian aid that showed the highest dependence on food imports in 1975 were Jamaica, Lebanon, Mauritius, Yemen PDR, Bangladesh, and Haiti.

Low production performance of the recipients was a significant factor in U.S., EC, and Canadian distribution policies in 1985 (PG was negative and significant for all three donors). Countries with the lowest production performance benefiting from this aid in 1980-85 were Haiti, Honduras, Mozambique, Niger, Rwanda, and Togo. Financial difficulties of the recipients remained influential in 1985 U.S. food aid policies. Recipients with the most financial difficulties were Chad, Jamaica, Lebanon, Lesotho, Swaziland, Yemen PDR, and Yemen Arab Republic (Yemen AR). Recipients' income level influenced EC allocation decisions in 1985. The lowest income recipients (under \$150 in per capita income in 1985) were Bangladesh, Ethiopia, Laos, Mali, Rwanda, and Somalia.

### **Political/Economic Interests**

In almost all equations, economic alliance (EI) was the only significant variable directly representing the donors' foreign political and economic interests. This result indicates that strong institutional and economic relationships between recipients and donors positively influence donors' food aid distributions.

In 1975, the United States had the strongest economic relationship (measured by the U.S. share of the recipients' total imports) with Colombia, Haiti, and Honduras. U.S. exports accounted for over 35 percent of imports in these markets. The 1985 list expanded to include Jamaica, Guatemala, El Salvador, Ecuador, Costa Rica, and the Dominican Republic.

Growing commercial markets received significantly larger volumes of food aid in the 1975 EC results (TG was positive and significant). Tunisia,



Mauritania, and Egypt were the fastest growing markets for EC exports during 1970-75. Institutional and economic alliances (EI) were significant factors affecting EC allocations in 1985. Recipients in which the EC had the largest trade share in 1985 were Togo, Congo, Cameroon, and Central African Republic.

Institutional and economic alliance was a significant factor affecting Canadian distribution policies in both periods. In 1975, Canada held the largest trade share in Yemen PDR, Bangladesh, and Haiti. Jamaica, Ethiopia, Guinea, Bangladesh, Colombia, and Morocco were the recipients in which Canada held the largest trade share in 1985.

**Table 12—Results of the country allocation model**

Donor and year	Constant	Explanatory variables									R <sup>2</sup>
		PG	SS	FP	GNP	WR	PI	EI	TG	D	
United States:											
1975	9.97	-0.041* (-1.65)	0.004 (.10)	-0.058* (-1.73)	-0.006* (-2.55)	1.235 (.83)	-2.626* (-2.18)	0.087* (2.47)	0.693 (1.07)		0.29
1985	23.50	-.149* (-3.18)	.036 (.32)	-.216* (-2.49)	-.006 (-1.49)	1.808 (.52)	-8.271* (-2.12)	.427* (4.07)	1.033 (.40)		.45
Pooled data	16.01	-.086* (-2.83)	-.027 (-.48)	-.127* (-2.55)	-.005* (-1.92)	2.787 (1.31)	-4.769* (-2.54)	.220* (4.03)	.434 (.38)	1.808 (.90)	.36
EC:											
1975	3.78	-.075* (-4.28)	.040* (1.55)	.040* (1.76)	-.004* (-2.49)	.047 (.05)	.416 (.50)	.017 (1.01)	4.474* (3.37)		.47
1985	7.46	-.080* (-3.20)	-.048 (-.84)	.018 (.38)	-.004* (-1.91)	1.129 (.65)	.879 (.45)	.048* (1.60)	4.336 (.83)		.25
Pooled data	3.14	-.079* (-5.15)	.006 (.20)	.032 (1.28)	-.004* (-2.95)	.757 (.74)	.521 (.53)	.031* (1.63)	4.410* (2.57)	2.549* (2.90)	.29
Canada:											
1975	-.10	.004 (.56)	-.041* (-3.92)	.002 (.21)	-.000 (-.26)	.291 (.66)	-.630* (-1.70)	.111* (1.58)	.031 (.37)		.31
1985	2.62	-.018* (-2.09)	.012 (.64)	-.022 (-1.41)	-.001 (-.90)	.619 (1.09)	-.293 (-.46)	.336* (2.01)	-.030 (-.55)		.18
Pooled data	1.68	-.008* (-1.57)	-.017* (-1.66)	-.011 (-1.32)	-.001 (-.90)	.488 (1.32)	-.316 (-.88)	.178* (2.08)	-.015 (-.35)	-.084 (-.23)	.23

Numbers in parentheses are t-statistics.

\* = Significant at the 5-percent level of confidence.

## The Relationship Between Donors' Allocations of Food Aid and Recipients' Needs Is Examined

To measure donor humanitarian concerns, food aid allocations are regressed against factors representing the recipients' economic and food situations.

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The results showed that trade and political interests sway donors' decisions on the allocation of food aid. While needy countries coincidentally may be recipients of this type of aid, humanitarian factors are not considered the primary purpose. On the other hand, food aid given for humanitarian reasons may have foreign policy effects, but these are also coincidental.

The country allocation results showed that humanitarian considerations are an important factor in donors' food allocation decisions. To more precisely quantify donors' consideration of recipients' needs, we measured the factors

representing the recipients' economic and food situation (the same variables included in the country allocation component).

This component models how much of the donors' criteria for distributing food aid among developing countries is based on consideration of the recipients' income, food production performance, dependence on food imports, and purchasing power.

Results are presented for the three major donors, by both individual and collective aid efforts, and for all donors in 1975 and 1985.

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### Determinants of Recipients' Needs Component

Distributions of food aid among developing countries are expressed as a function of the donors' humanitarian concerns relating to the recipients' food and economic status. Donors' considerations were modeled as follows:

$$FA_j = f(PG_j, SS_j, FP_j, GNP_j, WR_j)$$

Expected signs: -PG, -SS, -FP, -GNP, +WR

where:

$j$  represents the food aid recipient country;

$FA_j$  is per capita food aid transferred from all donors to country  $j$ ;

$PG_j$  is growth in food production in country  $j$ ;

$SS_j$  is food self-sufficiency in country  $j$  (the ratio of food production to the sum of domestic production, commercial imports, and stock changes);

$FP_j$  is the ratio of country  $j$ 's trade balance to its gross domestic product;

$GNP_j$  is per capita income in country  $j$ ; and

$WR_j$  is the presence of an emergency condition in country  $j$ .

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## Humanitarian Concerns Significantly Affect Bilateral and Multilateral Allocations From All Donors

U.S., EC, and Canadian food aid allocations respond to the economic and food needs of recipient countries, especially production shortfalls. Other donors respond with different, but comparable, humanitarian efforts.

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Individual and collective humanitarian efforts address recipients' food needs more so than do the donors' economic or political concerns. Humanitarian efforts shape worldwide donations, and their effect on U.S. aid is strengthening. But, the effects are not as great as when the donors' economic and political efforts are included in the aid package. This model generated results for U.S., EC, Canadian, and other donors' bilateral food aid (table 13) as well as multilateral and total food aid donations for 1975 and 1985 (table 14).

### Bilateral Aid

The variables relating to bilateral food aid based on humanitarian concerns about recipients' needs explained less of the relationship between food aid and food needs than when economic and political variables were included (compare tables 12 and 13). The humanitarian variables explained decreasing portions of the variation in EC and Canadian food aid allocations over the decade (lower  $R^2$  in 1985 than in 1975) but increasing portions of U.S. allocations (table 13). These results indicate greater consideration of recipients' needs in U.S. food aid transfers. Explanatory variables for other donors were within the range of the results for U.S., EC, and Canadian aid ( $R^2$  of 0.19 in 1975 and 0.18 in 1985). Therefore, other donors' responses to recipients' needs compare with the responses of the major donors.

### Multilateral Aid

The variables explained only 5 percent of the variation in multilateral food aid in 1975 ( $R^2$  of 0.05), and none were significant (table 14). According to Weisstein, multilateral organizations such as the World Food Program did not have an official food aid distribution policy in the early 1970's (51). Higher income countries with more capacity to absorb imports were generally selected as aid recipients rather than the poorer countries with food deficits. Effects of the program were easier to monitor in higher income countries, which was very important in generating support for multilateral programs. The World Food Program formulated an official policy regarding multilateral

food aid in the mid-1970's, with a major shift in distribution toward lower income countries. This shift could explain why food aid responded more to the variables representing the recipients' needs in 1985. Four of the five variables (PG, SS, FP, and GNP) had the expected negative signs, and the combined impact of all variables accounted for 21 percent of the variation in multilateral food aid distributions (table 14). Recipients' per capita income, the level of food deficits (captured by self-sufficiency), and food production performance were statistically significant.

### Aggregate Efforts by All Donors

Three of the explanatory variables--food deficits (SS), financial pressures (FP), and income (GNP)--were statistically significant in the 1975 equation for all donors. This result indicates that, on the aggregate level, food aid went to the lower income countries with high dependence on food imports. Only food production (PG) and emergency conditions (WR) significantly affected allocations in the 1985 equation. The dummy variable (D) significantly affected the pooled data, meaning an increase in aid in 1985 over 1975. Food production (PG), income (GNP), and emergency conditions (WR) significantly affected aid transfers from all donors in the pooled data.

### The Most Influential Needs

Food aid allocations responded to food production shortfalls in developing countries (PG or SS was significant in almost all equations). The economic situation of the recipients also influenced allocations (financial pressures or per capita income was significant in four of the eight bilateral equations, in the 1985 multilateral equation, in 1975 transfers by all donors, and in the pooled data for all donors). Responses to recipients' emergency conditions became a significant factor in the later period, but only in transfers by all donors. The lack of multilateral response to emergency conditions may reflect the limited financial capacities of multilateral institutions. These institutions often respond slowly because they have to seek additional resources from donors.

**Table 13—Bilateral donors' responses to recipient needs**

Donor and year	Constant	Explanatory variables					R <sup>2</sup>
		PG	SS	FP	GNP	WR	
United States:							
1975	9.24	-0.038 (-1.43)	0.007 (.17)	-0.047 (-1.33)	-0.003 (-1.36)	0.983 (.64)	0.11
1985	17.06	-.098* (-1.78)	-.131 (-1.03)	-.107 (-1.05)	.000 (.08)	4.174 (1.13)	.15
EC:							
1975	8.70	-.091* (-4.92)	.056* (2.02)	.025 (1.02)	-.005* (-3.08)	-.577 (-.54)	.31
1985	9.68	-.085* (-3.46)	-.050 (-.87)	.018 (.41)	-.005* (-2.46)	1.017 (.62)	.21
Canada:							
1975	.17	.002 (.26)	-.039* (-3.67)	.001 (.09)	-.000 (-.01)	.128 (.31)	.22
1985	2.26	-.013* (-1.56)	.007 (.37)	-.019 (-1.24)	-.000 (-.22)	.627 (1.14)	.11
Other donors:							
1975	7.28	-.002 (-.12)	-.031* (-1.95)	-.002 (-1.16)	-.048* (-2.26)	.483 (.52)	.19
1985	4.41	-.106* (-2.24)	-.009 (-.09)	.197* (2.25)	.001 (.33)	2.640 (.83)	.18

Numbers in parentheses are t-statistics.

\* = Significant at the 5-percent level of confidence.

**Table 14—Multilateral and all donors' responses to recipient needs**

Type of aid and year	Constant	Explanatory variables					D	R <sup>2</sup>
		PG	SS	FP	GNP	WR		
Multilateral aid:								
1975	3.43	0.026 (1.20)	-0.015 (-1.04)	-0.015 (-.77)	-0.001 (-.40)	-0.134 (-.16)		0.05
1985	7.31	-.037* (-2.38)	-.060* (-1.65)	-.040 (-1.38)	-.003* (-2.39)	-.298 (-.28)		.21
Transfers by all donors:								
1975	27.12	.044 (.74)	-.164* (-4.12)	-.087* (-1.65)	-.011* (-2.95)	.792 (.35)		.31
1985	38.18	-.351* (-3.91)	-.164 (-.78)	.104 (.63)	-.007 (-.96)	10.204* (1.68)		.27
Pooled data	26.61	-.269* (-4.87)	-.055 (-.53)	.019 (.21)	-.007* (-1.60)	6.578* (1.86)	9.674* (2.69)	.31

Numbers in parentheses are t-statistics.

\* = Significant at the 5-percent level of confidence.



### Donors' Domestic Considerations Remain Strong In Allocation Decisions

**The largest share of food aid is still bilaterally distributed, so the level and distribution of food aid remain dependent on the donors' policies. With an increase in both the number of donors and the share of multilateral programs, recipients' needs may have a larger bearing on allocation decisions.**

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The United States and Canada were the only countries with established international food aid programs during the 1950's and early 1960's. Aid contributions of other large food exporters were either in response to emergency needs of poor nations or to relieve domestic grain surpluses.

The United States encouraged other countries to contribute toward food aid programs in the late 1960's. Under the terms of the 1967 Food Aid Convention, the United States and 11 other developed countries committed to provide 4.5 million tons of grain on grant terms to needy countries. The U.S. share was 1.9 million tons (42 percent of the convention's total contribution), which was only a small part of total U.S. grain aid (14 million tons in 1967). However, the convention significantly increased contributions from other donors, especially the EC.

Participation by other countries in food aid programs increased the share of food aid by non-U.S. donors. The U.S. contribution declined from 74 percent in 1970 to 62 percent in 1985, the EC share more than doubled to 20 percent, and the Canadian share increased slightly to 12 percent. Multilateral donations also increased from 16 percent of total food aid in 1970-72 to 26 percent by 1983-85.

Demand for U.S. commercial food imports had grown substantially relative to the growth in food aid programs. During the first 18 years of the program, food aid shipments averaged 63 percent of total U.S. exports of wheat and wheat products. That share fell sharply by 1973 and remained below 20 percent through 1986.

Although the U.S. share of aggregate food aid has declined over the years, the U.S. role in world food aid remains crucial. As the largest donor, the United States provides over half of total food aid. But the nature and purpose of U.S. food aid policies have been the subject of continuous debate. The history of U.S. food aid has gone through different phases, from primarily surplus disposal to development and humanitarian efforts.

The model results showed a significant and positive relationship between stocks and food aid

transfers over time. This supports the premise that increased stocks directly raise the level of food aid, even with a reduced emphasis on surplus disposal. However, a significant reduction in donors' agricultural surpluses could lead to a reduction in food aid. This finding is of particular concern to developing countries, because the current Uruguay Round of GATT negotiations on liberalizing agricultural trade policies could reduce agricultural surpluses in industrialized countries. On the other hand, trade liberalization is expected to reduce budgetary pressures on farm programs, potentially increasing budget allocations for food aid in the United States and Canada.

Only the U.S. equation indicates that growing demand in commercial markets competes directly with food aid allocations. According to the results, rising demand in commercial markets conflicted with rising needs for concessional food aid.

The U.S. and Canadian results showed that budget pressures had a significant negative effect on the volume of food aid. That is, higher expenditures on agricultural programs generally reduces some U.S. and Canadian aid transfers. The EC and Canadian results showed a positive and significant response to emergency food situations (unlike the U.S. Title II PL 480 program, the EC and Canada do not have a separate program to respond to emergency conditions).

U.S. actions are expected to profoundly affect the actions of other donors and world food aid as a whole. U.S. initiative led to the creation of the Food Aid Convention in 1967, whereby other countries formally agreed to allocate a set volume of food aid each year. The number of contributors and the resource base of the program have eventually increased. Even with declines in donors' food surpluses, agreements such as the Food Aid Convention give hope for the future of food aid. The current GATT negotiations could create an atmosphere for further cooperation among the major food exporters and could lead to an increase in donors' aid commitments.

The growth of, and the direction of policy changes in, multilateral food aid (such as the World Food Program) also indicate increased donor co-



operation and reduced political influence on food aid distribution. Multilateral food aid is becoming more responsive to the needs of recipients (three of the five need variables were significant in the 1985 equation compared with their poor performance in the 1975 equation). However, the largest portion of food aid is bilaterally distributed, which means that individual donors still determine the majority of food aid issues by deciding whether a recipient meets the donor's criteria for food aid. However, food aid distribution is based not only on the donors' political and trade interests but also on the recipients' economic conditions. The recipients' economic conditions significantly influenced the donors' decisions for determining where to distribute food aid. For example, at least one of the variables measuring economic needs--food production growth, food self-sufficiency, financial pressures, income, and emergency conditions--was significant in all donor country allocation equations (table 12).

Among the variables representing direct donor political and economic interests, either economic and institutional relationships or trade growth was significant in almost all equations. The positive effect between the economic relationship variable

and food aid transfers is not unusual. Any international transfer of a resource has to get domestic support of interested political groups. Eliminating the donors' political and economic interests in food aid could substantially reduce the program.

Current bilateral and multilateral food aid policies are expected to continue as long as donors continue to generate excess production and developing countries continue to need food. Multilateral aid will likely increase, which would continue the current trend. If current distribution patterns continue, recipients' needs will be given more weight in allocation decisions, especially with the growth in the share of multilateral food aid and in the number of food importers (such as Japan) participating in the programs. Bilateral food aid is expected to respond to emergency needs of developing countries more effectively because donors have larger financial resources than do multilateral agencies (WR was significant for transfers by all donors in 1985 and for the pooled data). However, a substantial reduction in food surpluses as a result of weather, commercial demand growth, or domestic policies could lead to lower food aid allocations and stronger political and economic influences in distribution policies.

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Appendix table 1--Food aid recipient countries considered in the analysis

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Afghanistan	Lesotho
Angola	Liberia
Bangladesh	Madagascar
Benin	Malawi
Bolivia	Mali
Botswana	Mauritania
Burkina Faso	Mauritius
Burundi	Morocco
Cameroon	Mozambique
Cape Verde	Nepal
Central African Republic	Nicaragua
Chad	Niger
Colombia	Pakistan
Congo	Peru
Costa Rica	Philippines
Dominican Republic	Rwanda
Ecuador	Senegal
Egypt	Sierra Leone
El Salvador	Somalia
Ethiopia	Sri Lanka
The Gambia	Sudan
Ghana	Swaziland
Guatemala	Tanzania
Guinea	Togo
Haiti	Tunisia
Honduras	Uganda
India	Vietnam
Indonesia	Yemen Arab Republic
Jamaica	Yemen, People's Democratic Republic
Kenya	Zaire
Laos	Zambia
Lebanon	Zimbabwe

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